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Claims

1. A particle collector for collecting and sampling particles in a fluid in which particles are collected on a collector characterised in that the collector comprises sequentially (i) an inlet (5), (ii) a first collector (3) adapted to collect larger particles and (iii) a second collector (1) adapted to collect smaller particles which second collector comprises a chamber in which there is at least one net or another material containing fibres placed across the chamber and a flow means able to sustain a flow of fluid sequentially through the inlet, first collector and second collector.
- 10 2. A particle collector as claimed in claim 1 characterised in that the first collector (3) is adapted to collect particles larger than $0.3\mu\text{m}$ and the second collector is adapted to collect particles smaller than $0.3\mu\text{m}$.
- 15 3. A particle collector according to claim 1 or 2 characterised in that there is a humidity control unit (2) incorporated between the inlet (5) and the large particle collector (3).
- 20 4. A particle collector according to any one of claims 1 to 3 characterised in that the first collector (3) is selected from a cascade impactor, a plurality of cascade impactors in sequence, a sedimentation unit, a multi stage sedimentation unit, a cyclone and an array of a plurality of cyclones.
- 25 5. A particle collector according to claim 1 characterised in that the net sampler contains a plurality of nets with different mesh openings.
6. A particle collector according to claim 1 characterised in that there is a saturator located upstream of the first collector.

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7. A particle collector according to claim 1 characterised in that there are is an optical particle counter, a dust monitor, nephelometer, aethclometer or a condensation particle counter for obtaining particle size distributions without chemical or gravimetical analysis.

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8. A particle collector according to claim 1 characterised in that it is in combination with an ionisation unit and a mobility selective element and in that there is an aerosol neutraliser placed between the mobility selective element and the net sampler.

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9. A method for selective deposition of suspended particles from a fluid which method comprises (i) passing the fluid sequentially over a first collector adapted to collect larger particles and (ii) over a second collector adapted to collect smaller particles, which second collector comprises a chamber characterised in that there is at least one net or another material containing fibres placed across the chamber.

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10. A method for selective deposition of suspended particles according to claim 9 characterised in that the first collector collects particles larger than $0.3\mu m$ and the second collector collects particles smaller than $0.3\mu m$.

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11. A method for selective deposition of suspended particles according to claim 9 characterised in that the first collector is selected from a cascade impactor, a plurality of cascade impactors in sequence, a sedimentation unit, a multi stage sedimentation unit, a cyclone and an array of a plurality of cyclones.

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12. A particle collector according to claim 9 characterised in that the net sampler contains a plurality of nets with different mesh openings.

13. A method according to claim 9 characterised in that there is a saturator located upstream of the first collector.

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14. A method according to claim 13 characterised in that the larger particles are ionised and deposited in an electric field and the charge on the particles is reduced by a neutralisation unit placed between the first collector and the second collector.

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